REMARKS

Claim Rejection based upon 35 U.S.C. §102(b)

Claim 1, 5, 8 and 17 have been rejected under 35 U.S.C. §102(b), as being unpatentable over Moffett (US 6132625). The applicant believes the examiner is mistakenly applied the information in Moffett to the process used in the claimed invention as explained below.

The Moffet patent relates to treating biosolids from a wastewater treatment plant in a number of food processing applications. In these applications any water stream from the plant that cannot be reused or recycled in the process are combined and processed in an industrial wastewater treatment operation. The purpose of this biological waste water treatment operation is to remove or reduce the soluble organics from the stream to enable the plant to meet their permitted effluent quality prior to discharge of the stream to a local river, lake or municipal waste water treatment plant. Biosolids is the term accepted and used in the industry to describe the sludge or solids produced from a biological wastewater treatment system. The aerobic digestion process or the anaerobic digestion process are two process used to convert soluble organic matter to insoluble suspended matter. These processes are the basis for treatment of many municipal and industrial wastewaters. In biological digestion or secondary wastewater treatment, bacteria cultivated under controlled conditions utilize organic matter in the water as their food, producing sludge or biosolids as a by-product of the process. In some grain processing applications or food processing applications these recovered biosolids may be suitable for inclusion into one of the plants "co-products " animal feed. Moffet teaches that one way to treat these biosolids in the wastewater treatment process is to add an anionic inorganic colloid followed by a cationic organic polymer to flocculate the biosolids. In this process the pH of the stream is typically in the range of 7.0 to 8.5, the temperature is in the range of 70 to 90^0F and the stream may contain as much as 0.5 to 2.0% by weight suspended biosolids. The wastewater stream in the Moffet patent is from grain processing or breweries, which could include components from cereal grains like wheat, barley, rye and corn.

In case claimed invention we are dealing with a process stream in the plant at the point where fractionation of the corn kernel occurs. In this case process stream the starch component of the corn kernel has been removed from the stream by conversion and extraction techniques. Remaining in the process stream are the gluten(protein) fraction, the fiber fraction and the germ fraction of the corn kernel. At this point ion the process the germ, fiber and gluten fraction are typical referred to as whole stillage or thick slop. This is the term used for all of the remaining insoluble fractions of this process stream. There is also a small soluble protein fraction present in the stream, which we do not impact in our treatment. This soluble fraction would pass through to a wastewater treatment or evaporation step for treatment or recovery. The insoluble fraction we are treating or recovering has some interesting properties in that pH, temperature and composition play a significant role in chemistries and the specific properties of those that work in this application. The primary goal is to improve the solids liquids separation process and as a result improve the throughput and the efficiency of the particular unit operation in the separation process. In this process the pH of the stream is in the processing range of 3.0 to 5.0, the temperature is 160 to 200^0F and the stream typically contains 7% to 18% by weight suspended solids. There are also some significant differences in the characteristics and composition of the protein present in two streams. Due to the nature of the stream as described and identified in Moffet the protein value of the stream as treated is 3% or less by weight protein. The protein value of the stream discussed in the claimed invention is in the range of 10 to 20% by weight protein and is derived in dry grind ethanol operations from corn. There are significant differences in the proteins between grain and corn this can best be demonstrated by persons with food allergies such as gluten intolerance. While there is some sharing of terminology the "gluten from corn" is much different than "wheat gluten".

Further Claims 1-17 have been rejected under 35 U.S.C. §103(a), as being unpatentable over Moffett (US 6132625) in view of Levic et al. and further in view of Barajas et al. The applicant believes the examiner is mistakenly applied the information (as stated above and below) for Moffett, Levic and Barajas to the process used in the claimed invention as explained below.

The Levic publication refers to the treatment of brewers' spent grain waste water and the use of an inorganic coagulant such as Ca (OH)2 followed by an anionic flocculant to recover the sugars, proteins, cellulose, fats and minerals. The Levic patent relies heavily on the addition of the calcium hydroxide and a rather significant pH adjustment for precipitation and agglomeration of the proteins prior to the flocculation step. Once the solids from the biosolids from the biological wastewater treatment process are agglomerated and concentrated if they meet certain quality standards they may be recombined with the solids from the process stream, which are processed into animal feed. The process stream pH is typically around 11.0 at a temperature of 80^0 there is no information regarding typical suspended solids loading of the wastewater stream.

The Barajas patent discusses to some extent the synthesis of structured flocculants, particular to anionic flocculants. It gives one example of some flocculants that were synthesized, evaluated and tested again in a single municipal wastewater treatment application. The Barajas patent does not provide any information about the type or characteristics of flocculants that work best with certain types of solids or Biosolids applications. It's possible to develop many different polymer configurations with the same starting materials depending upon temperature, reaction rates, order of addition, raw material quality and composition. Often the intricacies of polymer formation will significantly change the way the polymer molecule interacts with the solids of interest. The development of surfactant packages for inversion of the polymer in the water as it is made down to a working concentration also plays a critical role in the activity or property of the flocculant. In the claimed invention special manufacturing procedures and precautions are part of the process in order to manufacture a flocculant that meets certain quality standards for inclusion into animal feedstuffs.

CONCLUSION

Applicants thanks the examiner for there review of this matter and submit that based upon the above Remarks, all pending claims are in condition for allowance and respectfully request that a Notice of Allowance be sent for all pending claims.

Respectfully Submitted,

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